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7. You will examine all persons, especially Mexicans and their families, whom section bosses and other employing officials may wish to engage as laborers, in order to rid them and their luggage of lice and nits and in order to detect typhus fever convalescents. Such convalescents may retain the infection in their blood for three or four weeks after being up and about, and if such cases go into our camps the lice in the camps are very likely to become infected by sucking the blood of such convalescents and in due time inoculate other laborers with typhus.

Until further orders no new men who are to go into camps or bunk cars will be employed without inspection by one of our local surgeons, who will furnish the employing officer a certificate saying that the applicant and members of his family are free from lice before he can be accepted for employment.

If inspection proves the applicant and members of his family to be free from lice, the certificate may then be granted.

If the applicant or members of his family are found to be infested with lice, no certificate shall be granted until the measures provided for in rules 1 and 5 have been carried out and the outside clothing disinfected and new clothing applied. This measure should also apply to all luggage of the applicant and members of his family.

So far no cases of typhus fever have been reported among our laborers, and it is the purpose of this order to make careful examination of all sick laborers and their families for evidence of the disease, including mild and atypical cases; to clean up and delouse the bodies and habitations of laborers and their families, and to prevent the introduction of infection by the employment of newcomers who may bear infected lice or who may be typhus convalescents.

Your attention is particularly invited to the necessity of protecting the health of those under your jurisdiction in order that the work of the railroad may not be interrupted.

Your active cooperation is expected.

PUBLIC HEALTH ADMINISTRATION.

WITH SPECIAL REFERENCE TO TOWNS AND RURAL COMMUNITIES.¹

By PAUL PREBLE, Passed Assistant Surgeon, United States Public Health Service.

Community health must be understood to be an attainable condition and practically every community may have the degree of healthfulness which it desires to secure and with which it is satisfied. Sanitary regulations often interfere temporarily with individual comfort and family management, and the statement often holds that any interference which tends to protect the health of the community is considered unwarranted interference with vested rights.

The old idea that one's health is his own business is based upon false and unfounded premises and has no standing in the sanitary code of to-day. In the past, individual effort to protect oneself against infection from without has generally proved ineffective and the appearance of epidemics called for more concerted action. Boards of health were established primarily to control and eradicate prevailing epidemics. The earlier efforts in public health work found ex-

¹ Abstracted from a paper delivered at the Eighteenth Annual School of Instruction for Health Officers, Burlington, Vt., July 5, 1916.

pression in local communities before being taken up by the State. However, progress in smaller towns and villages has in many instances remained at a standstill. This lack of progress has often been due to a certain civic pride which has defeated any attempt to change the old order of things or to cooperate with neighboring communities in promoting measures for the betterment of all concerned.

Although theoretically responsible for the health of the communities they represent, local boards of health are to-day, generally speaking, the weakest elements in the public health machinery we are so slowly building for the physical welfare of the Nation. Aside from certain routine matters, such as the enforcement of old-fashioned quarantine, the placarding of some of the cases of contagious disease that happen to have been reported, and fumigating at the termination of some of them, their activities are too often expended in attempting to abate common nuisances or settling neighborhood disputes over a chicken pen or carting away and burying dead animals—functions more fitting for the police department.

The general public has been slow, especially in rural communities, in accepting the simple facts concerned in the causation and spread of preventable diseases. Continued attempts to educate the individual as well as the public at large must be made, because success in public health organization and administration depends upon the cooperation, as well as the moral and financial support, of the community. The same general laws govern health and disease in the city and in the country.

With the development of community life, economic considerations were responsible for the establishment of common water supplies and public sewerage systems as well as other measures for the preservation and protection of life and property necessary for civic existence. Protection against communicable disease is as important as protection against larceny or incendiarism.

A glance at the various laws and the regulations adopted by municipal and State health departments during the past few years¹ reveals many ill-advised laws and regulations, but the general trend indicates an advance and an improvement in sane sanitary legislation.

The Functions of Federal and State Health Organizations.

To control and diminish effectively and efficiently the prevalence of communicable diseases are proper functions of the Federal, State, and local health authorities.

Briefly, the functions of the Federal health service are as follows:

1. To prevent the importation of communicable diseases from foreign countries and their spread in interstate traffic. (Acts of 1890 and 1893.)

¹ See Reprints from Public Health Reports Nos. 200, 264, 279, 338; also Nos. 70, 121, 199, 230, and 273.

2. To collect information of the prevalence and geographic distribution of disease and other pertinent sanitary information. (Act of 1893.)

3. To investigate the causes of disease and to determine means for prevention and control. (Acts of 1901 and 1912.)

4. To cooperate with and render assistance to State and local health authorities in matters pertaining to the public health. (Acts of 1893 and 1902.)

5. To distribute information and literature regarding the prevalence, geographic distribution, causation, and prevention of disease. (Acts of 1893 and 1912.)

The more important functions of the State health organizations are:

1. To enforce the State health laws.

2. To promulgate and enforce regulations to control the occurrence and spread of disease within the State, including quarantine.

3. To keep informed of the prevalence of disease.

4. To investigate epidemics and instances of unusual prevalence of disease, and to determine the conditions responsible for the epidemics or unusual prevalence.

5. To control the communicable diseases and prevent their spread.

6. To aid and assist local health authorities.

The rôle of the Local Health Department.

Our early primitive conditions have given place to a really complex civilization, complex because of the more or less close interrelation between the various units through travel and the exchange of commodities. The ease of communication with nearby or distant places, made possible by the increased transportation facilities furnished by railroads, interurban trolleys, and the automobile, has greatly increased the tendency of communicable diseases to spread from city to city and from State to State.

The duties and powers of the local health officer or board of health should be specific and clearly defined by law and pertain only to the business of improving and protecting the public health. They should include all measures necessary for the reduction of sickness and disease and the improvement of the general sanitary status of the community. As a basis for the activities of the health authorities, a sanitary code or set of rules and ordinances or regulations should be promulgated. These regulations should be prepared with extreme care and permit of intelligent application and enforcement. Too many of these codes to-day are amusing relics of ancient and antiquated ideas, hastily written a generation or more ago, incapable of enforcement or application to conditions as they exist at the present time.

In many of the smaller places there is found to exist only a board of health, composed mainly of busy practicing physicians who take their turn at placarding or fumigating or attempting to abate a few petty nuisances that are brought to their attention. They may receive a small monetary compensation. No records of any value are preserved and nothing real is accomplished in disease prevention. With the growing tendency to appoint health officers who are made the executive agents of the boards of health, it is reasonable to delegate to the boards only legislative and advisory functions. Local boards of health are too often perfunctorily appointed bodies and owe even their existence to some mandatory clause in the city or town charter.

The principal functions of a local board of health are briefly:

1. To urge and secure the adoption of such local legislation as may be necessary for the protection of the public health.
2. To adopt and promulgate such rules and regulations as may be necessary in maintaining the health and sanitary condition of the community.
3. To secure adequate appropriations and approve expenditures.
4. To consult with and advise the health officer in problems of special importance or of an emergency nature as they may arise from time to time.

The function of the local health officer and the local health department is the prevention and eradication of communicable or preventable diseases. It has been estimated that nearly one-quarter of all deaths in the United States are the result of communicable diseases many of which are essentially community diseases whose prevalence in a community is an index of the adequacy and efficiency of the local health organization.

Where local boards of health are established, the local health officer generally should be the executive officer of the board, empowered to enforce its rules and regulations. His tenure of office should depend upon his ability and efficiency. He need not necessarily be a physician, but he should have either thorough experience or previous training and a good working knowledge of sanitary principles and practice. It is absurd to require that he be a resident or a voter in the community he is to serve, because our sanitary science is really in its infancy, and trained sanitarians do not grow up over night in every community. Also a person without local ties will often make a more efficient public servant.

The Local Health Officer.

The most important function of the local health officer is the control of preventable diseases. To secure the best results, his efforts must be directed along three lines:

1. He must keep constantly informed concerning the prevalence and geographic distribution of preventable diseases within his jurisdiction (morbidity reports).

2. He must secure complete and definite knowledge of the various conditions responsible for this prevalence (epidemiological studies).

3. He must devise and institute remedial measures to control these diseases and reduce their prevalence (corrective measures).

The importance of morbidity reports.—The complete reporting of all cases or suspected cases of communicable diseases is the most important factor in their control and too much emphasis can not be placed on this point. While it is true that notification of cases of sickness is satisfactory in isolated instances, generally speaking, our morbidity returns are far from satisfactory. Without a knowledge of the existing cases of communicable diseases in his community the health officer can not intelligently investigate their epidemiology or institute measures for their control.

Nearly all the States have laws regarding the reporting of communicable diseases, but few, if any, are consistently enforcing them.

The importance of morbidity reports is being dismissed with apparently little discussion, but notification must be recognized as the corner stone upon which is built up our defense against communicable disease.

Epidemiologic studies.—In modern sanitary procedures, epidemiology, as a science, deals not only with epidemics but with usual or unusual prevalence of disease. Its function is to determine the origin, distribution, and means of spread. In common practice it is the local health officer that must assume the rôle of epidemiologist, because he is the man on the spot and best acquainted with local conditions. Given prompt and fairly complete case reports, he must study each individual case, check and tabulate his findings, and draw his conclusions as to the factor or factors responsible for the prevalence of the disease under investigation.

Personal visit to each known or suspected case should be made by the health officer immediately upon learning of its existence, in order to establish the diagnosis and determine, if possible, the cause or probable cause of the infection. A suitable blank form should be used, and for each case notation should be made of the findings in regard to the date of onset, the personal habits, environment, water and milk supply of the patient, method of disposal of excreta, the possibility of contact infection, and so forth. Proper blanks or cards not only make the collection of data easier, but facilitate tabulation and filing for future reference.

If the data are properly indexed and tabulated, a great deal can be learned concerning the real or probable cause of the disease studied. Chronological charts and spot maps, showing dates of onset of cases

with their distribution, are of invaluable assistance in following the progress of a disease.

This discussion of the value of epidemiologic study is brief, but it is desired to emphasize its importance as the foundation upon which must be based any intelligently applied remedial measures required to control or eradicate disease. It is unfortunately true that many boards of health and local health officers, especially in rural sections, do not devote much, if any, time to the epidemiologic study of the prevalence of disease in their communities. The one-man, part-time health department, with no clerical assistance, asks how he can be expected to collect and study these data. No elaborate equipment is necessary, and in rural communities, at least, comparatively little time is required to keep the information up to date at all times.

Control of disease—Corrective sanitation.—Having studied carefully the findings in each case reported or discovered during investigations, the evidence at hand will in most instances point to the steps necessary to control the situation, and much needless expenditure of energy and funds will usually be avoided. Without this information of the cases and the conditions under which they are occurring, the health authority will be working in the dark and wasting his available ammunition against an enemy of unknown numbers and haunts. Funds usually appropriated for health work are so limited that it requires wisdom and discretion born of training and experience to expend them to the greatest advantage.